City of Scottsdale

Commercial Green Building Checklist

New Construction and Major Renovation

Project Name - _____

Address - _____

		Documentation Required	Select Items	
	This checklist is designed to be a commercial counterpart to the Scottsdale Residential Green Building Program rating checklist. It is prescriptive-based and intended to address the local issues of Scottsdale in the regional context of the Sonoran Desert. Inspections, verification and certification will be administered by the city. There are four rating levels: Level 1 - Meet all prerequisites of checklist items; Level 2 - acquire 25 - 49 % of checklist items; Level 3 - acquire 50 - 74% of checklist items; Level 4 - acquire 75% or more of checklist items.			
1 - SUSTAINABLE SITES				
1.1	**Site Selection & Disturbance**			
	Prerequisites: * Stormwater management per Scottsdale ordinance. * Scottsdale Environmentally Sensitive Lands Ordinance. * General Plan conformance. * Dust control per Maricopa County regulations.			
	Options:			
1.11	Site Selection * Avoid development of inappropriate sites and reduce the environmental impact from the location of a building on site (avoid land identified for habitat loss and land identified as desert preserve).			
1.12	Revitalization * Infill development within existing infrastructure.			
1.13	Reduced Site Disturbance			
	* Rehabilitate damaged sites where development is complicated by real or perceived environmental contamination, reducing pressure on undeveloped land.			
	* Limit disturbance including earthwork and clearing of vegetation to within 20 feet of building footprint, 5 feet beyond primary roadway curbs, walkways and utility trenches, and 20 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities and playing fields); OR, on previously developed sites, restore a minimum of 50% of the site area (excluding the building footprint) by replacing impervious surfaces with native or adapted vegetation.			
	* Reduce the development footprint (including building footprint, access roads and parking) to exceed the zoning open space requirement for the site by 25%.			
	* Protect/preserve in place natural desert features within development footprint (i.e. - washes, boulders, vegetation).			

1.4	**Light Pollution Reduction**			
	Prerequisite:			
	* Meet Scottsdale ordinance requirements for on-site shielding of site lighting.			
	Options:			
1.41	Meet the light pollution reduction levels and ratios established by the Illuminating Engineering Society of North America (IESNA) *Recommended Practice Manual: Lighting for Exterior Environments* (RP-33-99).			
1.42	Provide solar powered lighting for at least 60% of site lighting.			
	Total Items Selected			

2 - WATER EFFICIENCY				
2.1	**Water Efficient Landscaping**			
	Prerequisite:			
	* Drought resistant plants used for 100% of landscape (exception: public recreational areas).			
	* Use high-efficiency irrigation technology (i.e. - zoned drip irrigation, rain water sensor).			
	Options:			
2.11	Leak detection system for determining location for repair.			
2.12	Use captured rain, grey water, cooling tower blow down water or recycled site water to reduce potable water for irrigation by 50% over conventional means.			
2.13	Use only captured rain and/or recycled site water to eliminate all potable water use for site irrigation OR do not install landscape irrigation system.			
	Total Items Selected			

2.2	**Indoor Water Use Reduction**			
	Prerequisite:			
	* Use of at least one water conservation measure that throughout the building exceeds city requirements (see examples below).			
	Options:			
2.21	Employ strategies that in aggregate use 20% less water than the baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Examples: Maximize plumbing fixture efficiency by using low-flow fixtures that exceed local code, dual flush toilets, waterless urinals, timed/Infrared water fixtures, locate water heater within 20' pipe length of point-of-use, point-of-use tankless water heater, hot water recirculating system with timer, leak detection system.			
2.22	Employ strategies that in aggregate, use 30% less water than the baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements.			
2.23	Employ strategies that in aggregate, use 40% less water than the baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements.			
	Total Items Selected			

2.3	**Innovative Wastewater Use**			
	Options:			
2.31	Use of treated cooling tower blow down water and/or grey water for at least 10% of non-potable uses (i.e. - water features, toilets, etc.).			
2.32	Collection and reuse of rainwater for at least 10% of non-potable uses, not including irrigation (i.e. - water features, toilets, etc.).			
			Total Items Selected	

3 - ENERGY AND ATMOSPHERE				
3.1	**Energy Performance**			
	Prerequisites: * Meet min. requirements of ASHRAE 90.1 or 2003 International Energy Conservation Code. * Reduce design energy cost 20% (compared to the energy cost budget for energy systems regulated by ASHRAE Standard 90.1, as demonstrated by a whole building simulation using the Energy Cost Budget Method described in Section 11 of the Standard). * Zero use of CFC-based refrigerants in new base building HVAC&R systems.			
	Options:			
3.11	Reduce design energy cost 30% (compared to the energy cost budget for energy systems regulated by ASHRAE Standard 90.1, as demonstrated by a whole building simulation using the Energy Cost Budget Method described in Section 11 of the Standard).			
3.12	Reduce design energy cost by 40% (cumulative - include item 3.11).			
3.13	Reduce design energy cost by 60% (cumulative - include items 3.11 & 3.12).			
			Total Items Selected	

3.2	**Building Commissioning**			
	Prerequisite: * Fundamental Building Systems Commissioning at time of building occupancy and 10 to 12 months after occupancy (validate that the fundamental building elements and systems are designed, installed and calibrated to operate as intended). City special inspection documentation required. (see exhibit A)			
	Options:			
3.31	Additional Commissioning. In addition to fundamental Building Commissioning, have a contract in place with an commissioning authority that is independent of the design team to conduct a review of the design prior to the construction documentation phase and review contractor submittals relative to systems being commissioned.			
3.22	Measurement and Verification. Install continuous metering equipment for lighting systems and controls; constant and variable motor loads; variable frequency drive (VFD) operation; chiller efficiency at variable loads (kW/ton); cooling load; air and water economizer and heat recovery cycles; air distribution static pressures and ventilation air volumes; boiler efficiencies; building-related process energy systems and equipment; indoor water risers and outdoor irrigation systems.			
			Total Items Selected	

3.3	**Renewable Energy**			
	Prerequisite: * Supply at least 5% of the project's peak power demand (kW) through the use of on-site renewable energy or off-site (green tags). * Or provide at least 50% of the project's electrical energy (kWh) from renewable sources by engaging in at least a two-year renewable energy contract.			
	Options:			
3.31	Supply at least 10% of the project's peak power demand (kW) through the use of on-site renewable energy systems			
3.32	Supply at least 20% of the project's peak power demand (kW) through the use of on-site renewable energy systems (cumulative - include item 3.31).			
3.33	Supply at least 40% of the project's peak power demand (kW) through the use of on-site renewable energy systems (cumulative - include items 3.31 & 3.32).			
3.34	Provide at least 75% of the project's electrical energy (kWh) from renewable sources by engaging in at least a two-year renewable energy contract.			
3.35	Provide at least 100% of the project's electrical energy (kWh) from renewable sources by engaging in at least a two-year renewable energy contract (cumulative - include item 3.34).			
	Total Items Selected			

4 - MATERIALS AND RESOURCES				
4.1	**Building Reuse**			
	Prerequisite:			
	* Maintain at least 5% of existing building (measured in cubic feet for structural elements) for major renovation projects (where valuation of improvements exceed 50% of existing building valuation)			
	Options:			
4.11	Maintain at least 25% of existing building (excluding window assemblies and non-structural roofing and ceiling material).			
4.12	Maintain at least 50% of existing building (excluding window assemblies and non-structural roofing and ceiling material). (cumulative - include item 4.11)			
4.13	Maintain at least 75% of existing building (excluding window assemblies and non-structural roofing and ceiling material). (cumulative - include items 4.11 & 4.12)			
	Total Items Selected			

4.2	**Waste Management**			
	Prerequisites: * Designate site area for construction waste separation and collection of recycled and/or salvaged materials. * Provide an easily accessible area that serves the entire building and is dedicated for occupant separation, collection, and storage of recyclables (paper, cardboard, glass, plastics, metals). * Develop and implement a construction waste reduction/reuse plan with min. 10% diversion of construction, demolition and land clearing waste from landfill (calculate by weight or volume but must be consistent throughout). City special inspection documentation required. (see exhibit A)			
	Options:			
4.21	Develop and implement a construction waste reduction/reuse plan with min. 25% diversion from landfill. Strategies: centralize operations to reduce waste & simplify sorting, design in modular dimensions to reduce waste, donate excess materials to non-profit building organization.			
4.22	Develop and implement a construction waste reduction/reuse plan with min. 50% diversion from landfill (cumulative - include item 4.21).			
4.23	Develop and implement a construction waste reduction/reuse plan with min. 75% diversion from landfill (cumulative - include items 4.21 & 4.22).			
	Total Items Selected			

4.3	**Resource Efficiency, Recycled Content and Reuse**			
	Prerequisites: * Use salvaged, refurbished or reused materials, products and furnishings for at least 5% of the total value of materials in the project. Project materials includes building and site improvements (i.e.- walls, paving, vegetation). * Use recycled content materials for at least 3 building components Examples: gypsum board with recycled products, recycled content underlayment/sheathing, recycled steel studs, reconstituted or recycled-content siding, fascia, trim or soffit (minimum 50% pre- or post-consumer), paints or finishes with recycled content, reconstructed or recycled content doors, recycled content carpet pad if used, recycled content or natural fiber carpet (tacked, not glued), recycled content tile, windows with recycled content frames.			
	Options:			
4.31	Use salvaged, refurbished or reused materials, products and furnishings for at least 10% of the total value of materials in the project. Project materials includes building and site improvements (i.e.- walls, paving, vegetation).			
4.32	Use materials throughout 50% of building (floors & ceilings), which require no application of finish materials (does not include paints, sealers and stains).			

4.33	Integrated wall system used for 50% of walls that serves as structure, thermal envelope and/or finish material (i.e. - integral insulated masonry, SIPS, ICF, ACC, adobe, rammed earth, strawbale).			
4.34	Use materials with recycled content for at least 5% of the total value of the materials in the project.			
4.35	Use materials with recycled content for at least 10% of the total value of the materials in the project (cumulative - include item 4.34).			
	Total Items Selected			

4.4	**Local/Regional Materials**			
	Prerequisites:			
	* Use at least 5% of building materials and products that are manufactured and/or extracted regionally within a radius of 500 miles.			
	Options:			
4.41	Use at least 20% of building materials and products that are manufactured regionally within a radius of 500 miles.			
4.42	Of the regionally manufactured materials in item 4.41, use a minimum of 50% of building materials and products that are extracted, harvested or recovered (as well as manufactured) within 500 miles of project site. Examples: locally produced block or brick, regionally quarried and processed stone			
	Total Items Selected			

4.5	**Rapidly Renewable Materials**			
	Options:			
4.51	Use rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle) for at least 5% of total value of all building materials and products used in the project (does not include value of mechanical, plumbing & electrical systems).			
	Total Items Selected			

4.6	**Wood Products**			
	Options:			
4.61	Use solid sawn lumber substitutes for at least 75% of structural elements (calculate by value). Examples: steel, engineered beams, joists, headers, alternative trusses for floors/roofs (TJI's, laminated/fingered jointed web members, etc.), finger-jointed wood products, no tropical hardwood or luan doors.			
4.62	Use at least 50% of wood-based materials and products, certified in accordance with the Forest Stewardship Council or the Sustainable Forest Initiative for wood building components including but not limited to, structural framing and general dimensional framing, flooring, finishes, furnishings, and nonrented temporary construction applications such as bracing, concrete form work and pedestrian barriers.			
	Total Items Selected			

5 - INDOOR ENVIRONMENTAL QUALITY				
5.1	**Air Quality**			
	Prerequisites: * Meet the minimum requirements of ASHRAE 62 or 2003 International Mechanical Code. * Zero exposure of smoking to non-smoking areas. - Install a permanent carbon dioxide (CO2) monitoring system that provides feedback on space ventilation performance in a form that affords operational adjustments (ASHRAE 62-2001, App. C). Specify initial operational set point parameters that automatically maintain indoor carbon dioxide levels no higher than outdoor levels by more than 540 parts per million at any time * Develop and implement an Indoor Air Quality (IAQ) Management Plan for the pre-occupancy phase of the building. - after construction ends and prior to occupancy conduct a minimum one-week building flush-out with new Minimum Efficiency Reporting Value (MERV) 13 filtration media at 100% outside air. After flush-out, replace the filtration media with new MERV 13 filtration media, except the filters solely processing outside air.			
	Options:			
5.11	Ventilation Effectiveness - For mechanical ventilated buildings, design ventilation systems that result in an air change effectiveness (E_{ac}) greater than or equal to 0.9 as determined by ASHRAE 129-1997.			
5.12	Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction phase of the building. - During construction meet or exceed the recommended Design Approaches of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 1995, Chapter 3. - Protect on-site or installed absorptive materials from moisture damage.			
5.13	Develop and implement an Indoor Air Quality (IAQ) Management Plan for the pre-occupancy phase of the building. - after construction ends and prior to occupancy conduct a minimum two-week building flush-out with new Minimum Efficiency Reporting Value (MERV) 13 filtration media at 100% outside air. After flush-out, replace the filtration media with new MERV 13 filtration media, except the filters solely processing outside air. - Or conduct a baseline indoor air quality testing procedure consistent with the US Environmental Protection Agency's current Protocol for Environmental Requirements, Baseline IAQ and Materials for Research Triangle Park Campus, Section 01445.			
5.14	Indoor Chemical & Pollutant Source Control - Design to minimize pollutant cross-contamination of regularly occupied areas. - Provide entryway systems such as grills, grates, etc. to capture dirt, particulates, etc. from entering the building. - where chemical use occurs (including housekeeping areas and copying/printing rooms), provide segregated areas with deck to deck partitions with separate outside exhaust at a rate of at least 0.50 cubic feet per minute per square foot, no air re-circulation and maintaining a negative pressure of at least 7 PA (0.03 inches of water gauge) - Provide drains plumbed for appropriate disposal of liquid waste in spaces where water and chemical concentrate mixing occurs.			
5.15	Active or passive radon mitigation installed to EPA guidelines.			
5.16	No human exposure to harmful fiber insulation.			
	Total Items Selected			

5.2	**Low-Emitting Materials**			
	Prerequisites: * Adhesives (max. VOC - 150 grams/liter). * Sealants & Sealant Primers (max. VOC - 250 grams/liter). * Meet Green Seal Std. GS-11 (max. 150 grams/liter for non-flat paints & 50 grams/liter for flat paints).			
	Options:			
5.21	Carpet systems meet or exceed the requirements of the Carpet and Rug Institute's Green Label Indoor Air Quality Test Program.			
5.22	Stage finish application to prevent absorption of VOC into surrounding materials			
5.33	Use urea formaldehyde-free products.			
5.34	Use environmentally sensitive termite protection (no chemical pesticides - i.e. termite block/shield systems).			
5.35	Use non-toxic, biodegradable form separators (no diesel fuel or other petroleum based products).			
5.36	Electrical panels located at least ten feet away from areas of frequent occupancy.			
	Total Items Selected			

5.3	**Systems Control**			
	Prerequisites: * Thermal Comfort: Comply with ASHRAE Standard 55-1992, Addenda 1995, for thermal comfort standards including humidity control within established ranges per climate zone.			
	Options:			
5.31	Perimeter Control - Provide at least an average of one operable window and one lighting control zone per 200 square feet for all regularly occupied areas within 15 feet of the perimeter wall.			
5.32	Non-Perimeter Control - Provide controls for each individual for airflow, temperature and lighting for at least 50% of the occupants in non-perimeter, regularly occupied areas.			
5.33	Thermal Comfort - Install a permanent temperature and humidity monitoring system configured to provide operators control over thermal comfort performance and the effectiveness of humidification and/or dehumidification systems in the building.			
	Total Items Selected			

5.4	**Daylight and Views**			
	Prerequisites: * Achieve a minimum daylight factor of 2% (excluding all direct sunlight penetration) in 25% of all space occupied for critical visual tasks.			
	Options:			
5.41	Achieve a minimum daylight factor of 2% (excluding all direct sunlight penetration) in 75% of all space occupied for critical visual tasks.			
5.42	Achieve direct line of sight to vision glazing for building occupants in 90% of all regularly occupied spaces.			
5.43	All work stations occupied for critical visual tasks are located within 25 feet of windows.			
	Total Items Selected			

5.5	**Noise Reduction**			
	Options:			
5.51	Use of noise reduction systems to achieve noise levels below 40 db.			
			Total Items Selected	

6 - SPECIAL OPTIONS				
1				
2				
3				
4				
5				
6				
			Total Items Selected	

	PERCENTAGE OF ITEMS SELECTED	